Technical Report 66

A Hierarchical Structure of Leadership Behaviors

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This research was sponsored by the Organizational Effectiveness Research Programs, Psychological Sciences Division, Office of Naval Research, under Contract No. N00014-67-A-0398-0012, NR 170-737.

April, 1973

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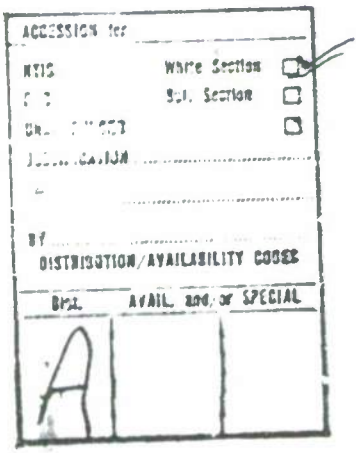

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Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)

Management Research Center
University of Rochester
Rochester, New York 14627

2a. REPORT SECURITY CLASSIFICATION

Unclassified

2b. GROUP

3. REPORT TITLE

A Hierarchical Structure of Leadership Behaviors

4. DESCRIPTIVE NOTES (Type of report and inclusive dates)

Technical Report 66

5. AUTHOR(S) (First name, middle initial, last name)

John A. Miller

6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
April, 1973	33	42

8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)
N00014-67-A-0398-0012	Technical Report 66
b. PROJECT NO. NR 170-737	
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d.	

10. DISTRIBUTION STATEMENT

Approved for public release; distribution unlimited.

11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY
	Organizational Effectiveness Research Programs, Office of Naval Research, Arlington, Virginia 22217

13. ABSTRACT

Persuasive conceptual parallels among various taxonomies of leader behavior descriptions (cf. Bowers & Seashore, 1966) are investigated empirically, and a cybernetic framework is employed as a guide to the interpretation of factors.

300 respondents from 10 organizations completed a leader behavior description questionnarie consisting of 73 items assembled from standard sources. A hierarchical analysis (Zavala, 1971) was performed by rotating (varimax) successively two, then three, and so on, up to the 12 principal components which would have been chosen by Kaiser's eigenvalue criterion (1958). At each level, interpretable solutions reflecting familiar leader behavior factors emerged. At the most general (two-factor) level, leadership acts were viewed as Structuring (constraining member autonomy, enhancing system predictability) and Destructuring (relaxing constraints, enhancing system flexibility), consistent with an open systems view of leadership (Miller, 1973). Each successive hierarchical level was seen as specifying increasingly operational definitions (e.g., "production emphasis" and "close supervision" as subfactors of Structuring in the four-factor solution; "participating," "information-sharing," and "consideration" as subfactors of Destructuring in the six-factor solution, etc.) of behavior patterns employed by leaders to accomplish these general system-modifying functions.

The two-factor solution was confirmed by a higher order factor analysis (Schmid & Leiman, 1957). Factoring the matrix of intercorrelations generated by oblique rotations of the original 12 principal components produced two clusters. The first higher-order factor contained the "consideration" and "decision-centralization" primary factors; the second contained "production emphasis," "directing and controlling," and "inflexibility."

DD FORM 1 NOV 65 1473 (PAGE 1)

S/N 0101-807-6811

Unclassified

Security Classification

A-31409

14. KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
Structuring						
Destructuring						
Leadership						
Open systems						
General Systems Theory						
Cybernetics						
Organization						
Requisite variety						
Leadership styles						
Leader behavior factors						
Leader Behavior Description Questionnaire						
Factor analysis						
Hierarchical structure						
Higher-order factors						
Consideration						
Initiation of Structure						
Production and Goal Emphasis						
Decision-centralization						
Close supervision						
Power-equalizing						

HIERARCHICAL RELATIONSHIPS AMONG LEADER BEHAVIOR FACTORS

John A. Miller

Research on Classifying Leader Behavior Descriptions

Substantial research efforts have been and are being made to discover consistent relationships between certain "basic dimensions...of managerial behavior" (Wofford, 1970:169) and various criterion measures, including "subordinate productivity and satisfaction..." (Yukl, 1971:414). Two major research programs, focusing on the "idea of specifying predictable relationships between what an organization's leader does and how the organization fares" (Bowers & Seashore, 1966:238), have been running concurrently since the late 1940's. The Ohio State Leadership Studies (cf. Stogdill & Coons, 1957) and the University of Michigan Survey Research Center program (cf. Bowers & Seashore, 1966) have produced systems of classifying leader behavior descriptions which "have achieved considerable prominence" (Bowers & Seashore, 1966:239).

Other research programs, using somewhat different sets of leader behavior measures, terminology, and research settings, utilize similar clustering or factor-analytic procedures to establish categories of leader behaviors. Bowers and Seashore (1966) review a number of such programs, including the Ohio State, Michigan Survey Research, Research Center on Group Dynamics (cf. Cartwright & Zander, 1960), and others with results published up to the mid-1960's, and conclude that "a great deal of conceptual content is held in common" (1966:238 ff.) among these sets of findings. More recent conceptual (cf. Yukl, 1971) and empirical extensions (cf. Wofford, 1970) continue to approach the problem with similar methods, and achieve similar results.

The search for conceptual correspondence among categorizations of leadership behaviors has led to the widespread acceptance of two "basic"

dimensions, variously identified as "task vs. maintenance functions" (Cartwright & Zander, 1960), "employee-orientation vs. production-orientation" (Katz et al., 1950), or "concern for people vs. concern for performance" (Blake & Mouton, 1964). Other categorization schemes employing more than two classes, such as the Michigan "four-factor theory" (Bowers & Seashore, 1964) or the more recent Ohio State multiple-factor classifications (Stogdill, Goode & Day, 1962, 1963, 1964), are still typically described within a two-factor framework, where additional factors represent various partitionings or subfactors of a two-dimensional scheme. The dominant framework tends to be that utilizing the familiar Ohio State terminology: "Consideration vs. Initiating Structure" (Halpin & Winer, 1957).

> The two major dimensions or factors in leadership behavior, as shown by the factor loadings, are consideration and initiation of structure. In other words, if we want to describe how leaders behave, measuring how considerate they are and how much they structure interaction gives us most of the picture. Subsequent studies by a number of investigators (Fleishman, Harris & Burtt, 1955; Halpin, 1955), as well as studies outside the Ohio State group, have supported the importance of these two dimensions.... There is abundant evidence... that the consideration and initiation dimensions, or similar factors, are of overriding importance in most leadership situations. Their identification constitutes one of the most important achievements of leadership research.
>
> (Fiedler, 1971:7)

Unfortunately, despite this widespread agreement on the nature of leader behavior descriptions, research on the meaning of leadership behaviors and on the relationships between leader behaviors and various organizational effectiveness measures has produced largely inconsistent and often contradictory findings (Korman, 1966; Lowin, 1968; Yukl, 1971; House, 1972). This state of affairs has prompted a number of efforts to improve the predictive power of leader behavior factors. Two approaches to the problem can be identified. The first attempts to identify situational variables to develop moderator models of the links between leader behavior factors and individual and organizational outcomes (cf. House, 1972).

The second approach, of which this study is one example, focuses directly on the conceptual and operational definitions of leader behaviors, recognizing that the persuasive conceptual parallels among various categorization schemes, noted above, have not been established empirically. The purpose of the present study is to provide an integrated descriptive framework for leader behavior categories consistent both with empirical relationships among several well-known classification schemes and with theoretical propositions derived from general systems theory.

Methods and Results

Item development. Approximately 160 items were assembled from nine frequently referenced standard instruments utilized in published research concerning leadership behavior. Particular attention was given to the Ohio State LBDQ/LOQ/SBDQ items (Stogdill and Coons, 1957) and to the leadership items in the Michigan ISR Survey of Organizations (Taylor and Bowers, 1970), both because of the extensive previous work devoted to

Leadership Opinion Questionnaire
Leadership Behavior Description Questionnaire
~~Source~~ Supervisory Behavior ~~Dimensions~~ Description Questionnaire

the development of these items, and because of the widespread prominence of the classification systems deriving from their use (cf. Bowers and Seashore, 1966). The original item pool included the following:

1. 40 items from the LBDQ "short form" (Halpin & Winer, 1957).

2. 19 supervisory behavior items from the Michigan ISR Survey of Organizations (Taylor & Bowers, 1970).

3. 12 leadership role behavior items describing the interaction Process Analysis categories (Bales, 1950).

4. 18 supervisory descriptions from the Cornell Job Descriptive Index (Smith, Kendall, & Hulin, 1969).

5. Six leadership-related items from the Orientation Inventory (Bass, 1962).

6. Seven scale anchors used to describe a "continuum of leadership behavior" (Tannenbaum & Schmidt, 1958).

7. Six categorical statements describing a "continuum of decision-making styles" (Vroom, & Yetton, in press).

8. Ten items were written to tap the five "bases of social power" (French & Raven, 1959).

9. 36 adjectives (18 dichotomous pairs) used in the LPC scale (Fiedler, 1967).

It was decided to follow the format prescribed for item development used by the Ohio State researchers; namely:

1. Items should describe specific behavior, <u>not</u> general traits or characteristics.[...]

5. The items should be written in the present tense.

6. The items should begin with the pronoun "He."

7. The item should be limited to one unit of behavior (should not be "double barreled").[...]

9. The items should not be emotionally or evaluatively toned except as that tone is an inseparable part of the behavior it describes. (Hemphill & Coons, 1957:9f).

Applying these prescriptions produced a large number of changes in the original pool. Complex ("double"-and often "triple-barreled") descriptions of leadership styles (Tannenbaum & Schmidt, 1958; Vroom & Yetton, in press; Bales, 1950) were, when possible, separated into single items, yielding 24 additional items. Items describing general traits not readily translatable into behavioral terms were eliminated; this removed most of the LPC adjectives, and five of the JDI items. After the elimination of repeated (or directly negated) items, 73 leader behavior descriptions were retained for this analysis (cf. Appendix A).

Analysis. 300 respondents from ten organizations completed this 73-item leader behavior description questionnaire. The data were first subject to a principal components factor analysis. Kaiser's eigenvalue criterion (1958) was employed to select the first 12 principal components for varimax rotation. The results of this solution were consistent with familiar orthogonal factorizations of leader behavior items (see below), although it was clear that certain factors were neither conceptually nor empirically independent (i.e., had high item loadings in common).

Relationships among factors were investigated in two ways. First, a hierarchical description (Zavala, 1971) was generated by rotating successively two, then three, then four, and so on, up to 12 principal components, using the varimax (orthogonal) rotation algorithm. At each level, interpretable solutions reflecting familiar leader behavior factors emerged. The two-factor solution clearly paralleled "Consideration" and "Initiating Structure," although the label "Consideration" was rejected as a motivational inference appropriate to only a subset of the items defining this factor.

Other clearly identifiable factors discovered in previous research emerged successively: "Production and goal emphasis" and "close supervision" split apart as subfactors of "Initiating Structure" in the four-factor solution. "Participating" (cf. Heller & Yukl, 1969 re "decision-centralization") emerged at level six; "information-sharing" at seven, and "supporting" (the narrowly interpersonal interpretation of "consideration") at level eight; "enforcing rules and procedures" emerged as a subfactor of "close supervision" at level nine, and so forth (see Figure 1).

A second approach to the factor structure, rather than "top-down," was to carry out a higher order factor analysis (Schmid & Leiman, 1957) by calling for oblique (in this case, oblimin) rotations of the 12 principal components stipulated by Kaiser's criterion, then factoring the matrix of factor intercorrelations. This procedure directly produced two clusters of factors. Although the interpretation of higher order factors with reference to original items is not typically straightforward (cf. Cattell, 1966), these two clusters clearly confirmed the "top-down" hierarchical analysis. The three primary factors loading most significantly on the first higher-order factor were "consideration," "power-equalization" (or "decision-decentralization") and "abdicating" (negative of "demanding"). The three primary factors loading most highly on the second were: "production emphasis," "directive, controlling," and "Inflexible."

Table I lists the items loading significantly on leadership factors, rearranged to parallel intercorrelations. The new item numbers refer to those in Table II, which summarizes the item loadings on factors at each successive hierarchical level. Figure I presents an interpretation of the hierarchical structure defined in Table II, using factor labels suggested by both theoretical considerations and familiar results of previous research.

Discussion

The problem of factor labels in leader behavior research. The naming of empirically derived categories, particularly those resulting from factor analysis procedures which employ techniques for rotating reference axes, is a tricky business (cf. Guilford, 1954:500f., 522ff.). Typically, one examines the pattern of factor loadings, lists those items which load highly on the factor in question (and have zero or low loadings on other factors), attempts to discover a common thread of "meaning" among those items, and arbitrarily assigns a label to the factor which appears to summarize or encapsulate the meaning common to the items. The interpretation of rotated factors gives the researcher "the opportunity and the responsibility to exert all the intuitive powers he can muster" (Guilford, 1954:533).

Some researchers avoid the problems created by this arbitrary process by simply referring to numbered factors and defining those factors in terms of item loadings. Most researchers, however, appear to accept the risks of misinterpretation, overgeneralization, and information loss as potential costs outweighted by the heuristic value of a factor name. The potential costs of this arbitrary labelling process are likely to be especially high when heuristic labels are chosen without reference to a conceptual framework which describes possible relations among factors.

The costs of such a labelling process, in the absence of a conceptual framework, are illustrated in the case of Consideration (C) and Initiating Structure (IS). The items included in the Leader Behavior Description

Questionnaire (LBDQ) are designed to permit the respondent "to describe, as accurately as you can, the behavior of your supervisor" (Form XIII, Bureau of Business Research, Ohio State, 1962). For the most part, the LBDQ items directly describe behaviors, using the format, "He does...," "he makes...," or "he gives...." In a few cases, the behavior descriptions are indirect, but more or less easily translatable into behavioral terms (e.g., "he is friendly and approachable," or "his arguments are convincing").

When factor analyzed, LBDQ items consistently fall into two major (and several minor) clusters, each of which, obviously, consists entirely of items describing sets of behaviors. It seems clear that the risks of misinterpretation of information loss in factor naming are likely to be minimized when the label is of the same functional mode as the items defining the factor; i.e., if the items are behaviors, the factor label should be behavioral.

The meaning of Consideration and Initiation of Structure. In the case of leader behavior descriptions, an example of a relatively appropriate label is "Initiating Structure." Items defining this factor include "he assigns group members to particular tasks," "he maintains definite standards of performance," and "he asks that group members follow standard rules and regulations." A test of the usefulness of a proposed factor label for these items is thus the ability to construct a parallel behavioral description (at some level of generality) using the label. "He initiates structure" fulfills this behavioral requirement. (While it is not clear that the items imply initiation ("he asks that members follow standard rules and regulations," or "he maintains definite standards of performance" suggest the use or emphasis of existing structure, rather than initiation), the

behavioral nature of the label does match the nature of the defining items.)

This requirement is not met however, in the case of "Consideration." This label is not a behavior description, but rather a motivational inference. It may be that leaders who "put suggestions made by the group into operation" or "treat all group members as his equals" do so because they are considerate. It is likely that leaders who are "friendly and approachable" are considerate. There are, however, alternative (and more likely) inferences to be made about leaders who "find time to listen to group members," "try out new ideas in the group," "permit members to use their own judgment in solving problems," or "give advance notice of changes."

Yukl argues, from theoretical considerations, that "items pertaining to the decision-making participation of subordinates" be treated "as a separate dimension of leader behavior" (called "Decision-Centralization"), even though "Consideration is sometimes defined as including the sharing of decision-making with subordinates" (1971:417). The usefulness of this conceptual distinction seems to be supported in Yukl's reanalysis of relevant literature (1971:419ff.). Unfortunately, such a conceptual distinction fails to account for the consistent empirical clustering of these items in factor analytic studies of leader behavior. We conclude that "Consideration" is not an appropriate heuristic for summarizing this empirical cluster: it is a motivational inference which can be drawn, if at all, from only a subset of items in the cluster.

The present study does provide empirical support for separating a "Consideration" subfactor from a "participating" subfactor, as suggested by Yukl (1971), and also identifies other subfactors typically subsumed under "Consideration." In the absence of a conceptual framework, however, the problem of labeling the general cluster containing these subfactors remains.

An Open Systems framework. General systems theory (von Bertalanffy, 1962) provides a potentially powerful framework for the description and analysis of organizational phenomena (cf. Katz & Kahn, 1966; Weick, 1969; Buckley, 1968). An extensive discussion of nature of leadership in open systems is presented elsewhere (Miller, 1973). A brief summary of propositions concerning leadership derived from open systems theory provides guidelines for the interpretation of leader behvior factors found in Figure 1.

The central proposition of the theory is a restatement of Ashby's "Law of Requisite Variety" (1956): Systems cope effectively with their environments when internal processes are structured to the same degree as environmental variation is patterned. The central task of an organized system is to cope with environmental variety. It does so effectively to the extent to which process structure (the rules of the game) matches, or "isomorphically maps," relevant aspects of its environment (Buckley, 1968).

The effectiveness of a system's transactions with its environment depends on its ability both to register, or "notice" its environment, and to apply rules to deal with what has been noticed. Highly structured rules enable systems to deal with noticed problems efficiently, but at the

expense of isolation from potentially relevant aspects of the environment. A completely programmed system is closed; its behavior is completely predictable, given knowledge of the program, but it is insensitive to any input not defined as acceptable to the program. The problems of an under-structured system are the reverse: It experiences indecision and inaction in the face of "blooming, buzzing confusion." The less the level of process structure, the more open the system is to the influence of environmental variation.

Effectively coping systems meet the mutually exclusive requirements for stability and flexibility (cf. Weick, 1969) by employing either or both of two strategies. They either sequence, evoking relatively "tight" structures to enhance predictability at one time, and relaxing constraints at another, or they parallel-process, by assigning differentiated structures to different subsystems. Attempts to do both in the same subsystem at the same time will be ineffective; a compromise in process structure will produce rules appropriate for neither stability nor flexibility (cf. Weick, 1969).

Leadership in open systems. Within this framework, leadership behaviors are defined as acts which modify existing process structure to achieve an appropriate match between the rules of the game and environmental demands. Leadership acts are both outcomes of existing process structure and inputs to subsequent structure. They are triggered by a perceived mismatch between available rules and environmental demands, which evokes the search for new or modified sets of rules. This negative feedback arises as a consequence of the "Characteristic incompleteness and imperfection of organizational design" (Katz & Kahn, 1966); the existing rules of the game are not likely

to match new problem characteristics exactly. Leadership is required to compensate for the inappropriateness of existing process structure; in essence, leadership is a system's fine-tuning mechanism.

A structuring act increases the level of process structure; it adds constraints, increasing the predictability of system member behavior. Structuring acts are undertaken to compensate for inappropriately understructured processes. A destructuring act relaxes constraints on member behaviors; it is undertaken to overcome rigidities characteristic of inappropriately overstructured processes. In general, structuring acts deal with convergent processes--controlling, executing, implementing, or "doing;" destructuring acts focus on divergent tasks--planning, thinking, and "noticing" (cf. Weick, 1969). Destructuring acts serve as "means of combating the process by which men become prisoners of their procedures" (Gardner, 1965).

Interpreting Hierarchical relationships among leader behavior factors. This systems framework has guided our interpretation of the most general (two-factor) level of leader behavior clusters. Within this framework, each successive hierarchical level is viewed as specifying (Zavala, 1971) increasingly operational definitions of behavioral strategies employed by leaders to accomplish the two general system-modifying functions.

No claim can be made that the particular structure described in this paper constitutes the pattern of relationships among leader behaviors in general. This hierarchy clearly reflects relations among the 73 items selected for administration to this particular sample. It is quite likely

that the factors emerging at lower levels constitute descriptions of particular organizational situations (cf. Cattell, 1966), such that confidence in generalizations would be reduced at each successively lower level. Internal consistency reliability coefficients (Nunnally, 1967:193ff.) were calculated for each factor at each solution level. In the two-factor solution, the Destructuring factor reliability was .91 and Structuring was .80. At successive levels, reliabilities of all factors remained acceptable (above .60) through the seven-factor solution. Factors which emerged beyond the seventh can only be regarded as suggestive at this point. Replication, including hierarchical and higher order reanalysis of data from leader behavior descriptions collected by other researchers, is clearly required.

Nevertheless, these findings appear to provide a useful emipircal description of the nature of relationships among common leader behavior classification schemes. They suggest the need to specify the level of generality of factor measures used in attempts to establish relationships between leader behavior scales and various organizational criteria. These findings raise serious questions concerning the tacit assumption of statistical independence among factors generated by traditional orthogonal factorizations. Most importantly, perhaps, these findings stress the need for conceptual clarity in the interpretation of emprically derived clusters.

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FIGURE 1. THE HIERARCHICAL STRUCTURE OF 37 LEADERSHIP BEHAVIORS

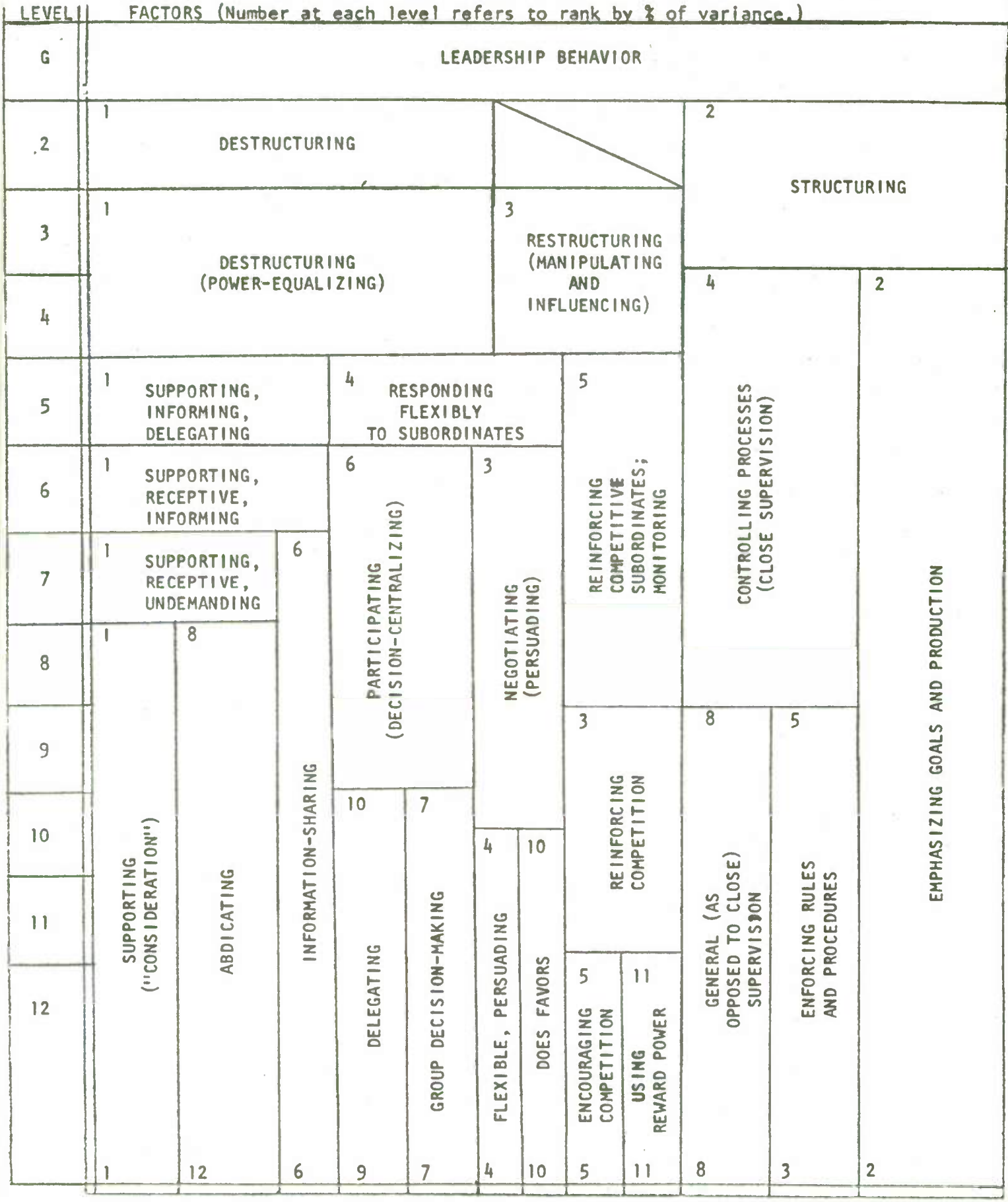

TABLE I

ITEMS LOADING SIGNIFICANTLY
ON LEADERSHIP FACTORS

ITEM NO.	(ORIGINAL VARIABLE)	ITEM
1.	156	He delegates decisions to others.
2.	158	He permits the group to make all decisions, subject to his veto.
3.	146	He is hard to please. (-)
4.	124	He makes group members feel at ease when talking with them.
5.	125	He is friendly and approachable.
6.	153	He is willing to make changes.
7.	167	He puts suggestions made by the group into operation.
8.	135	He finds time to listen to group members.
9.	109	He exhibits confidence and trust in his subordinates.
10.	118	He refuses to explain his actions. (-)
11.	98	He uses punishments and threats of punishment (demotions, criticism, firing, etc.) to influence group members. (-)
12.	112	He treats all group members as his equals.
13.	103	He does little things to make it pleasant to be a member of the group.
14.	152	He gives suggestions, but leaves members free to follow their own courses.
15.	166	He jokes and laughs to release tension.
16.	133	He rules with an iron hand. (-)
17.	150	He keeps the group informed.
18.	115	He gives advance notice of changes.
19.	104	He makes his attitudes clear to the group and invites questions for clarification.
20.	120	He asks for suggestions and directions about possible group actions.
21.	136	He tries out his new ideas with the group.

TABLE I
(continued)

ITEMS LOADING SIGNIFICANTLY
ON LEADERSHIP FACTORS

ITEM NO.	(ORIGINAL VARIABLE)	ITEM
22.	119	He does personal favors for group members.
23.	138	He changes his behavior to fit changing situations.
24.	139	He "sells" his decisions by persuasion.
25.	116	He uses rewards and promises of rewards (raises, promotions, praise, etc.) to influence group members.
26.	160	He makes the group members compete with each other.
27.	102	He leaves other members "on their own."
28.	161	He schedules the work to be done.
29.	137	He asks that group members follow standard rules and regulations.
30.	168	He encourages the use of uniform procedures.
31.	108	He sets an example by working hard himself.
32.	105	He shows other members how to improve their performance.
33.	145	He sees to it that the work of group members is coordinated.
34.	130	He lets group members know what is expected of them.
35.	144	He sees to it that group members are working to capacity.
36.	154	He emphasizes the meeting of deadlines.
37.	162	He maintains definite standards of performance.

TABLE II. SUMMARY OF ROTATIONS; VARIABLE LOADINGS ON FACTORS

NO. OF FACTORS ROTATED	VARIABLES																																		% VAR	MIN EIG
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37		
2	25	17	*47	79	78	72	73	74	75	-68	-65	65	60	58	57	-56	65	54	67	58	56	14	21	29	-10	37	34	52	29	31	*41	*43	*57	*57	*55	44	60	36	5.4
	x1	x1	-44	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	x1	x1	x1	x1	2	1	2	2	2	54	58	55	48	42	2	2		
3	26	18	-51	81	79	72	72	72	74	-68	-68	67	61	58	59	-63	59	51	62	57	51	38	42	31	44	43	38	49	30	35	51	49	64	67	64	51	67	40	2.5
	x1	x1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	3	3	1	2	2	2	2	2	2	2	2	2	2		
4	25	17	-56	80	79	67	67	70	66	-66	-63	69	60	54	58	-68	57	50	57	56	47	38	41	30	44	44	-36	41	62	55	66	57	68	66	74	52	65	44	2.0
	x1	x1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	3	3	4	4	4	4	2	2	2	2	2	2	2		
5	25	19	-59	83	82	65	63	65	65	-62	-65	72	57	53	58	-69	50	45	36	37	35	31	45	28	43	66	-33	39	63	55	67	59	71	67	76	52	66	47	1.7
	x1	x1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	4	4	4	4	2	5	5	3	3	3	3	2	2	2	2	2	2	2		
6	41	46	-63	83	83	61	58	63	62	-61	-64	71	53	46	58	-68	47	45	45	45	36	32	44	27	44	67	-32	36	66	61	67	59	72	68	77	53	68	49	1.6
	6	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	2	4	4	4	2	5	5	2	2	2	2	2	2	2		
7	44	45	-64	81	80	54	52	55	56	-51	-62	68	48	42	60	-66	61	46	63	56	52	36	54	43	40	76	-37	31	64	69	65	52	69	62	75	60	65	52	1.5
	7	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6	6	6	6	6	4	4	4	3	3	3	5	5	5	2	2	2	2	2	2	2		
8	45	45	-60	84	83	61	57	61	61	-56	-66	69	49	46	61	-67	53	44	56	50	45	34	54	43	36	75	-37	30	66	68	64	60	72	67	78	55	66	54	1.3
	7	7	xx	1	1	1	1	1	1	1	1	1	1	1	1	1	6	6	6	6	6	4	4	4	3	3	3	5	5	5	2	2	2	2	2	2	2		

TABLE 11. SUMMARY OF ROTATIONS; VARIABLE LOADINGS ON FACTORS
(continued)

NO. OF FACTORS ROTATED \ VARIABLES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	% VAR	MIN EIG
9	45	45	-59	83	83	59	56	61	59	-57	-66	68	49	44	60	-68	54	47	61	51	47	33	54	45	42	71	53	-34	74	67	62	58	71	66	78	58	68	56	1.3
	7	7	xx	1	1	1	1	1	1	1	1	1	1	1	1	1	6	6	6	6	6	4	4	4	3	3	8	8	5	5	2	2	2	2	2	2	2		
10	-37	51	-59	84	83	61	58	62	61	-59	-67	68	50	46	59	-69	51	46	57	48	44	35	54	45	46	74	54	-42	76	66	63	60	72	67	78	56	68	58	1.2
	10	7	xx	1	1	1	1	1	1	1	1	1	1	1	1	1	6	6	6	6	6	3	3	3	4	4	8	8	5	5	2	2	2	2	2	2	2		
11	44	51	-60	83	82	60	57	61	60	-58	-66	67	50	45	59	-69	54	47	61	51	51	58	51	58	45	74	54	-40	74	69	61	58	72	65	79	55	68	60	1.2
	11	7	xx	1	1	1	1	1	1	1	1	1	1	1	1	1	6	6	6	6	6	10	4	4	3	3	8	8	5	5	2	2	2	2	2	2	2		
12	44	51	-60	83	82	59	56	60	59	-57	-63	69	48	42	61	-67	56	48	62	52	52	57	49	58	53	65	58	-41	73	71	60	57	71	65	78	56	68	62	1.1
	9	7	xx	1	1	1	1	1	1	1	1	1	1	1	1	1	6	6	6	6	6	10	4	4	11	5	8	8	3	3	2	2	2	2	2	2	2		

1. Decimal points omitted from factor loadings.

2. % Var: The percentage of total variance accounted for by the given number of rotated factors.

3. MIN EIG: The value of the smallest eigenvalue (i.e., that of the last factor) for the given level of rotation.

4. *: In the two-factor solution (first row), these variables loaded significantly on both factors; in each case, the upper number is the loading on the second factor, and the lower, the loading on the first; e.g., variable 3 loads -.44 on factor 1 and .47 on factor 2.

5. -: negative loading.

6. xl: non-significant loadings at this level.

7. xx: the interpretation of this single-variable factor is provided by consideration of other variables which load on this factor but are not included in this analysis.

PART LB: LEADER BEHAVIORS

The items in this section are statements about the behavior of leaders. For each statement, place an "X" through the number which best describes how frequently your immediate superior (leader, manager, boss, etc.) engages in the behavior described. Read each item carefully, and think about actual behaviors of the type described, before deciding.

The numbers represent the following descriptive phrases:

1 = Virtually Always
2 = Often
3 = Occasionally
4 = Seldom
5 = Virtually Never

Example:

He vetoes group decisions 1 2 3 X 5
[The respondent's "X" through "4" indicates that the respondent seldom sees examples of this behavior from his superior.]

1.	He acts as the real leader of the group	1 2 3 4 5
2.	He uses punishments and threats of punishment (demotions, criticism, firing, etc.) to influence group members	1 2 3 4 5
3.	He gets his superiors to act for the welfare of the group	1 2 3 4 5
4.	He avoids personal control by referring to "company policy" or "decisions from above"	1 2 3 4 5
5.	He makes sure that his part in the organization is understood by group members	1 2 3 4 5
6.	He leaves other members "on their own"	1 2 3 4 5
7.	He does little things to make it pleasant to be a member of the group	1 2 3 4 5
8.	He makes his attitudes clear to the group and invites questions for clarification	1 2 3 4 5
9.	He shows other members how to improve their performance	1 2 3 4 5
10.	He backs up the members in their actions	1 2 3 4 5
11.	He strives for individual visibility, recognition and prominence in the organization	1 2 3 4 5
12.	He sets an example by working hard himself	1 2 3 4 5
13.	He exhibits confidence and trust in his subordinates	1 2 3 4 5

14.	He encourages other members to work with him as a team	1 2 3 4 5
15.	He takes count of the different abilities, interests, and needs of each individual group member	1 2 3 4 5
16.	He treats all group members as his equals	1 2 3 4 5
17.	He gets what he asks for from his superiors	1 2 3 4 5
18.	He speaks as the representative of the group	1 2 3 4 5
19.	He gives advance notice of changes	1 2 3 4 5
20.	He uses rewards and promises of rewards (raises, promotions, praise, etc.) to influence group members	1 2 3 4 5
21.	He insists on reviewing all of the group members' decisions, papers, etc.	1 2 3 4 5
22.	He refuses to explain his actions	1 2 3 4 5
23.	He does personal favors for group members	1 2 3 4 5
24.	He asks for suggestions and directions about possible group actions	1 2 3 4 5
25.	He ignores problems at lower levels in the company	1 2 3 4 5
26.	He tries to avoid interpersonal conflict	1 2 3 4 5
27.	He lets other people take away his leadership in the group	1 2 3 4 5
28.	He makes group members feel at ease when talking with them	1 2 3 4 5
29.	He is friendly and approachable	1 2 3 4 5
30.	He makes decisions and solves problems himself and issues directives toothers in the group	1 2 3 4 5
31.	He speaks in a manner not to be questioned	1 2 3 4 5
32.	He keeps to himself	1 2 3 4 5
33.	He moderates group discussions about problems, aiming for group consensus on decisions	1 2 3 4 5
34.	He lets group members know what is expected of them	1 2 3 4 5
35.	He criticizes poor work	1 2 3 4 5
36.	He is easy to understand	1 2 3 4 5

PART LB

37.	He rules with an iron hand	1	2	3	4	5
38.	He consults individually with members about problems, but makes final decisions himself	1	2	3	4	5
39.	He finds time to listen to group members	1	2	3	4	5
40.	He tries out his new ideas with the group	1	2	3	4	5
41.	He asks that group members follow standard rules and regulations	1	2	3	4	5
42.	He changes his behavior to fit changing situations	1	2	3	4	5
43.	He "sells" his decisions by persuasion	1	2	3	4	5
44.	He is guarded in his statements	1	2	3	4	5
45.	He tells other members where they stand	1	2	3	4	5
46.	He gets the group's approval in important matters before going ahead	1	2	3	4	5
47.	He is around when needed	1	2	3	4	5
48.	He sees to it that group members are working to capacity	1	2	3	4	5
49.	He sees to it that the work of group members is coordinated	1	2	3	4	5
50.	He is hard to please	1	2	3	4	5
51.	He assigns group members to particular tasks	1	2	3	4	5
52.	He treats all group members alike	1	2	3	4	5
53.	He sides with top management in conflicts between group members' desires and organizational requirements	1	2	3	4	5
54.	He keeps the group informed	1	2	3	4	5
55.	He encourages competition with other groups and departments	1	2	3	4	5
56.	He gives suggestions, but leaves members free to follow their own courses	1	2	3	4	5
57.	He is willing to make changes	1	2	3	4	5
58.	He emphasizes the meeting of deadlines	1	2	3	4	5
59.	He is distant, aloof	1	2	3	4	5

60.	He delegates decisions to others	1	2	3	4	5
61.	He fails to take necessary action	1	2	3	4	5
62.	He permits the group to make all decisions, subject to his veto	1	2	3	4	5
63.	He meets with the entire group at regularly scheduled times	1	2	3	4	5
64.	He makes the group members compete with each other	1	2	3	4	5
65.	He schedules the work to be done	1	2	3	4	5
66.	He maintains definite standards of performance	1	2	3	4	5
67.	He takes account of the possible effects of the group's activities on other parts of the organization	1	2	3	4	5
68.	He changes the duties of group members without first talking it over with them	1	2	3	4	5
69.	He uses his technical knowledge and expertise to influence group members	1	2	3	4	5
70.	He jokes and laughs to release tension	1	2	3	4	5
71.	He puts suggestions made by the group into operation	1	2	3	4	5
72.	He encourages the use of uniform procedures	1	2	3	4	5
73.	He uses his personal popularity and attractiveness to influence group members	1	2	3	4	5

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